IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Applicant:	§	
	§	
David W. Herbage	§	Confirmation No.: **6684**
	§	
Filed: **November 25, 2003**	§	Art Unit: **3641**
	§	
Serial No.: **10/722,234**	§	Examiner: **Clement, Michelle Renee**
	§	
	§	Attorney Docket No.: **A310429.1US**

For: **Countermeasure System and Method of Using the Same**

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

RESPONSE TO NOTICE OF NON-COMPLIANT APPEAL BRIEF AND RESUBMISSION OF APPEAL BRIEF

Dear Sir:

In response to the Notification of Non-Compliant Appeal Brief mailed July 12, 2007, Applicant resubmits its Appeal Brief with corrections and comments in support of the Appeal filed November 1, 2006 in the above-referenced application.

First, the Appeal Brief is rejected because the brief does not contain a statement of the status of all claims or does not identify the appealed claims. The Appeal Brief at page 3 under the heading "Status of Claims" does identify the status of all claims. Claims 1 through 43 and 45 were previously canceled. Claims 44 and 46 through 54 are rejected. Applicant has added a statement he appeals the rejection of pending claims (44 and 46 through 54).

Second, Applicant has shortened the summary of claimed subject matter in response to Examiner's objection to the length of the brief. A description of the corresponding structure including references to the specification for the means for rotating the launch tube referred to in independent claim 44 is included at page 5 of the brief. A description of the

corresponding structure including references to the specification for the propulsion means referred to in independent claim 44 is included at page 5 of the brief. A description of the corresponding structure including references to the specification for the internal control means referred to in dependent claims 50 and 51 is included at page 6 of the brief.

Third, Applicant included the on-line dictionary reference in response to Examiner's rejection of claim 54 based on a patent first relied upon by Examiner in the final rejection of applicant's claims. [Office Action, mailed September 1, 2006]. This patent uses the term Doppler effect and Examiner uses the term in the Office Action. [*Id.* at p. 6]. Applicant does not believe that it was improper to include the dictionary definition of a word used in a patent included in the record in the Appeal Brief; however, Applicant has withdrawn the citation to the dictionary at Examiner's request.

Fourth, Applicant has removed the comments relating to Examiner's objections to the drawings from the Appeal Brief.

Applicant respectfully submits that the Appeal Brief is now compliant.

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REAL PARTY IN INTEREST

The real party in interest is Kilgore Flares Company, LLC, the assignee of record.

RELATED APPEALS AND INTERFERENCES

None.

STATUS OF CLAIMS

Claims 44 and 46 through 54 are under final rejection. Claims 1 through 10, 11 through 43, and 45 were previously canceled. Applicant appeals the rejection of claims 44 and 46 through 54.

STATUS OF AMENDMENTS

An Amendment after final rejection was filed electronically on December 19, 2006 to comply with the Examiner's requirements of form and present the rejected claims in better form on appeal. In an advisory action mailed January 18, 2007, Examiner refused to enter the proposed Amendment and claims 44 and 46 through 54 remain rejected.

SUMMARY OF CLAIMED SUBJECT MATTER

Independent claim 44 claims a countermeasure system capable of effecting launch and deployment from one or more vertical launch tubes. The countermeasure system vertically launches a countermeasure cartridge using a predetermined parameter relating only to azimuth. [Specification p. 3, ll. 5-13].

The launcher assembly 20 of the present invention includes a launch tube 24 and an imaginary reference axis 26 that extends along a length 28 of the launch tube 24. [Figure 2; Specification *see* p. 2, ll. 15-21] This reference axis 26 and, accordingly, the length 28 of the launch tube 24 are fixed in a substantially vertical orientation. In addition to the launch tube 24, the launcher assembly 20 includes an outer tube 25. At least a portion of the launch tube 24 is disposed within this outer tube 25 and the reference axis 26 extends along the length 30 of the

outer tube 25. The outer tube 25 is interconnected to a base 22 of the launcher assembly 20. [Specification pp. 12-13].

The launch tube 24 rotates about the reference axis 26. [Figure 2]. The outer tube 25 is stationary; therefore, the launch tube 24 is rotatable relative to the outer tube 25. [Specification p. 14, ll. 12-18]. The countermeasure system includes a means for rotating the launch tube 24 about its axis 26. (See independent claim 44). The mans for rotating the launch tube 24 is a servo motor 32 or any appropriate mechanism capable of providing rotational movement and/or force (*e.g.*, torque) to the launch tube 24. [p. 13, ll. 12-19, Figure 2]. [Specification p. 14, ll. 5-7].

Applicant's invention includes a countermeasure cartridge 50 which is disposable in the launch tube 24 of the launcher assembly 20. [Figure 3]. All or part of the countermeasure cartridge 50 is positionable within the launch tube 24 prior to the launch of the cartridge 50 therefrom. The cartridge 50 includes at least one propulsion means 52 (e.g. rocket motor, impulse assembly, mortar assembly and/or the like). (See independent claim 44). [Specification p. 15, ll. 12-20 as amended in Applicant's Amendment in Response to Office Action, mailed March 2, 2006]. The countermeasure cartridge 50 also includes at least one payload section 54 containing one or more appropriate decoys 54', such as infrared and/or radar reflecting decoys. [Specification p. 16, ll. 14-17 as amended in Applicant's Amendment in Response to Office Action mailed March 2, 2006].

The countermeasure cartridge 50 is trained only in azimuth. The countermeasure cartridge 50 is equipped with one or more canards 64 or spring-loaded fins upon that aft portion of the countermeasure cartridge 50 clearing the launch tube 24 to assist in the desired flight characteristics of the countermeasure cartridge 50. [p. 7, ll. 4-7]. The launch tube 24, and thus

the countermeasure cartridge 50, is rotated into position and the canard 64 is set so that the non-rotating countermeasure cartridge 50 tips over to its pre-set azimuth after launch. [p. 24, ll. 4 - p. 25, l. 2]

The countermeasure system 12 includes a rotation inhibitor for substantially preventing rotation of the countermeasure cartridge 50 relative to the launch tube 24 when the countermeasure cartridge 50 is disposed within the launch tube 24. The rotation inhibitor here refers to a combination of at least one guide key 68' (e.g. protrusion, projection, outcropping or the like) associated with the countermeasure cartridge 50' and at least one keyway 76' (e.g. groove, channel, or the like) defined in the launch tube 24'. [Figure 5; p.22, ll. 9-11; p. 20, ll. 7-16] A length 84 of the keyway 68 (76') is parallel to the reference axis 26 when the countermeasure cartridge 50 is disposed within the launch tube 24. [p. 20, ll. 7-16]. This rotation inhibitor achieves what may be characterized as the zero-twist rifling feature of the countermeasure cartridge relative to the launch tube. [Specification p. 23, ll. 11-12].

The countermeasure cartridge 50 of Figure 3 includes an appropriate internal control means 56 referred to in dependent claims 50 and 51. The internal control means 56 includes an appropriate microprocessor control unit 61, one or more appropriate canard control modules 63, and at least one timing device 67. [Specification p. 17, ll. 13-18 as amended in Applicant's Amendment in Response to Office Action, mailed March 2, 2006].

The countermeasure system is trained in azimuth in the following manner: The launch tube 24 of the countermeasure system 12 may be rotated about its longitudinal reference axis 26 in response to predetermined flight data received by the internal control means 56 and/or independent launch timing and/or launch azimuth signals conveyed to the launcher assembly 20.

This rotation of the launch tube 24 may generally be said to affect a launch azimuth of the countermeasure cartridge 50. [Specification p. 24, ll. 4 - p. 25, l. 2].

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 44 and 46 through 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Becker (U.S. Patent No. 4,662,265), Gassler (U.S. Patent No. 4,681,014), Grosso (U.S. Patent No. 5,425,514), and Finkelstein (U.S. Patent No. 3,245,318).

Claim 54 is rejected under 35 U.S.C. 103(a) as being unpatentable over Becker, Gassler, Grosso, and Finkelstein (U.S. Patent No. 3,245,318), as applied to claim 44, and in further view of Null (U.S. Patent No. 4,149,166).

ARGUMENT

Grouping of Claims

For each ground of rejection which appellant contests herein which applies to more than one claim, such additional claims, to the extent separately identified and argued below, do not stand or fall together.

Rejection of Claims 44 and 46 through 53 under 35 U.S.C. 103(a)

"To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations." MPEP 706.02(j). A *prima facie* case of obviousness has not been made and Appellant respectfully requests that this Board overrule the rejection of these claims.

The Cited Prior Art Does Not Teach or Suggest All Claim Limitations

The prior art cited by Examiner does not teach or suggest all claim limitations of the present invention as required for a rejection under 35 U.S.C. 103(a). Contrary to the assertion in the office action, Becker does not disclose a means for rotating the launch tube about its axis for training the countermeasure cartridge in azimuth while disposed on the base. [Office Action Mailed September 1, 2006, p.4]. Becker discloses a system for horizontally orienting (aiming) a rotatable weapon's platform. [col. 1, ll. 31-42]. In Becker, the base rotates around the central axis of the base, not around the central axis of the missile launch tube. [*See* Figs. 1-2; col. 2, l. 63 - col. 3, l. 4; col. 4, ll. 19-22]. In other words, the weapon in Becker must include a means for rotating the weapon's ***base around the axis of that base***. Becker refers to a weapon 5 which may have a "tube" such as the barrel of a howitzer or cannon. The weapon 5 may rotate about the axis 11 of the base 9 when the tube is in the clamped position and the base is being adjusted, but the tube itself does not rotate about its own axis. [col. 4, ll. 1 - 9]. Appellant's invention is entirely different because it includes the limitation of a means for rotating the launch tube about ***the launch tube's axis*** in order to train the countermeasure cartridge in azimuth. Examiner has pointed to no individual reference or combination of prior art references disclosing this limitation.

Additionally, none of the references cited disclose a system for vertically launching a countermeasure cartridge which is trained ***only*** in azimuth. Examiner also relies on Becker to teach this limitation. [Office Action Mailed September 1, 2006, p. 4]. Again, Becker discloses a system which allows a weapon base to be quickly, horizontally maneuvered so that the mounted weapon will be pointing in the desired direction. [col. 5, ll. 20-25]. Becker does not teach anything regarding the orientation of a launch tube; its teachings are limited to the horizontal orientation of a weapon's base. Further, the projectiles in the present invention, the

countermeasure cartridges, are self-propelled, meaning they have a propulsion module, such as a rocket motor, that exhibits a comparatively slow burn to effect movement. [Specification p. 15, ll. 16 - 17]. The system in Becker is a rotatable base designed for use with fired projectiles such as howitzers or cannons. [*See* Becker col. 1, ll. 8 - 28]. Weapons utilizing fired projectiles use gun powder to propel the projectile from the tube and on its course. Those skilled in the art recognize that fired projectiles are not vertically launched.

No prior art cited discloses a countermeasure cartridge having a guide key cooperable with the tube longitudinal keyway said guide key and said keyway being disposed for interaction to effect non-rotational axial movement throughout a substantial portion of the launch such that the countermeasure cartridge remains trained in azimuth. Examiner asserts that Finkelstein "teaches a launcher comprising a guide and a groove attached to the missile to prevent rotation of the projectile during the launching stage." [Office Action Mailed September 1, 2006, p. 5]. Finkelstein discloses a missile launcher with guide rails and a guide track that prevents rotation of the missile during the launch stage. [col. 3, ll. 35-45]. It discloses a flotation missile launcher designed for launching a missile from a body of water so that the missile is easily handled and serviced while waterbourne. [col. 1, ll. 15-18]. Finkelstein's missile launcher is not trained in azimuth for its launch course, and discloses no means to train the missile by rotating a launch tube. Finkelstein discloses no means to aim the missile at all. Logically, since the missile of Finkelstein is not trained in azimuth, it can not remain trained in azimuth during the launch. Those of skill in the art will recognize that the missile launcher in Finkelstein is used with missiles whose course is set after launch. None of the other references identified disclose a countermeasure cartridge that remains trained in azimuth during launch as described in the present invention.

Because the prior art cited by Examiner does not teach or suggest all claim limitations of the present invention; Applicant's invention should not have been rejected as obvious and the Board should overrule the rejection.

There is No Suggestion, Motivation or Teaching to Combine the Cited Prior Art to Produce the Present Invention

The initial burden is on the examiner to provide some suggestion of the desirability of doing what the inventor has done. "To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985); MPEP 706.02(j). Here, the Examiner has not met the initial burden; therefore, the obviousness rejection should be overruled.

It is suggested it would have been obvious to a skilled artisan to combine Becker and Gassler to produce a "launcher that had decreased rotational movement during on-loading of the missile in order to decrease cable winding[1] and increase precision." [Office Action Mailed September 1, 2006, p.5]. Becker is described above. [*See supra*, p. 8]. Gassler is directed to a guide system for preventing rotation of a missile during on-loading in a launching tube while permitting a controlled translation of the missile in the launching tube when subjected to external seismic shocks. [col. 5, l. 47 - col. 6, l. 2]. The alignment is only functional during the loading process. [*See* col. 3, ll. 15 - 42]. The missile rests on top of a missile support ring which is attached to the guide system and mounted to the silo or other such device. [*See* Figure 2; col. 4.,

[1] Cable winding occurs during loading of a missile into a launch tube.

l. 20 - col. 5., l. 30]. Gassler's "loading" guide system is not interconnected to the missile so as to operate in guiding it during launch.

There is no motivation to combine Becker and Gassler. First, Becker discloses a system for aiming a weapon's platform, not for decreasing the rotation of a launcher; therefore, Becker could not have provided the stated motivation. Second, the combination of Becker and Gassler is illogical. There is no need for a base to horizontally orient a missile launched from a silo. If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti,* 270 F.2d 810, 123 USPQ 349 (CCPA 1959); MPEP 2143.01. The combination of Becker and Gassler would change the principal of operation of both those inventions; therefore, the combination can not be relied upon to render the present invention obvious.

Third, the stated motivation does not describe applicant's invention. Applicant's invention fixes the countermeasure cartridge in the launch tube via a keyway and guide key, allows rotation of the tube about its axis to train the countermeasure cartridge in only azimuth, then provides for non-rotational axial movement throughout the launch such that the countermeasure cartridge remains trained in azimuth. It does not teach a launcher that has decreased rotational movement during on-loading of the missile in order to decrease cable winding[2] and increase precision. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990); MPEP § 2143.01 The Examiner has not provided a convincing line of reasoning as to why a

[2] Cable winding occurs during loading of a missile into a launch tube.

skilled artesian would have combined Becker and Gassler; therefore, the obviousness rejection should be overruled.

Examiner states that it would be obvious to combine Becker, Gassler, and Finkelstein. [Office Action Mailed September 1, 2006, p.5]. There is absolutely no suggestion or motivation to combine Finkelstein, directed to a waterbourne, flotation missile launcher, with Becker, directed to missile launch platform which attaches to vehicles, and Gassler, directed at missile launching from large silos "to obtain a system that prevents rotation of the missile during launching." [Office Action Mailed September 1, 2006 p.5]. The guide system in Finkelstein prohibits rotation during launch so that the fins of the missile do not become entangled with the support structure. Finkelstein's missile launcher is not trained in azimuth for its launch course, and discloses no means to train the missile by rotating a launch tube. There are no teachings in Finkelstein regarding any sort of aiming of the missile. The invention is limited to the construction of the launch platform. [*See supra* p. 12 for a detailed description of Finkelstein].

The apparatus which comprises the invention in Gassler is attached to a support ring. The missile is attached to the support ring and lowered into the silo without rotation so that it can be properly positioned in the silo. The apparatus and the support ring stay in the tube when the missile is fired. They have no function during the launch. In fact, "[t]he missile [in Gassler] and its longitudinal support assembly are [] free to move in all planes in the launching tube" after the missile is loaded into the tube. [col. 5, ll. 28-30]. Applicant's invention effects non-rotational axial movement during launch such that the countermeasure cartridge remains trained in azimuth. Neither Finkelstein, Becker, nor Gassler, together or separately, suggest that limitation nor provide any teaching or motivation to be combined to create Applicant's invention.

Examiner states that combination of Becker, Gassler, Finkelstein and Grosso discloses the "decoy cartridge having a canard means and the specific control means" of Applicant's invention. [Office Action Mailed September 1, 2006, p.5]. Examiner identified the suggestion or motivation for this combination as "to obtain a defense system that had a higher probability of hitting the target." [*Id.* at p.6].

Grosso relates to "artillery or gun systems" that utilize spin-stabilized projectiles "with the ability to hone in on a target." [col. 1, ll. 11-14]. Grosso teaches an offensive system which increases the probability that the spin-stabilized projectile will hit its target. [col. 3, ll. 22-34]. Those skilled in the art recognize that spin-stabilized projectiles are fired projectiles as discussed *supra* with respect to Becker. Grosso does not relate to self-propelled missiles such as those utilized in the countermeasure system of the present invention. The countermeasure system of the present invention is purely a diversionary defense system. The countermeasure cartridges are deployed to redirect an incoming projectile. They are aimed quickly with little regard for precision. There is no suggestion to combine these references because the prior art cited does not suggest that such a combination would be desirable. *See In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990); MPEP § 2143.01. The probability of hitting the target is not important to the present invention relating to diversionary countermeasure systems, therefore, one skilled in the art would not have found any motivation to combine the cited references.

Moreover, the canards employed by Grosso are designed for spin-stabilized (i.e. rotating) projectiles. [col.5, l. 65 - col. 6, l. 8]. The canards used for self-propelled missiles such as the countermeasure cartridges utilized in Applicant's invention to tip the non-rotating cartridge over to its pre-set azimuth are entirely different.

There is no suggestion, motivation, or teaching in the prior art cited by examiner to combine Becker, Gassler, Finkelstein and Grosso to produce Applicant's invention; therefore, the rejection should be overruled.

The Cited Prior Art Does Not Render the Present Invention Obvious Because It Is Non-Analagous Art

The cited references are from non-analogous art. The Examiner states that the cited references are from analogous art because they all relate to defense systems. [Office Action mailed September 1, 2006 pp. 5-6]. This is a broad categorization of the art. A wide variety of weaponry exists for defensive purposes. These weapons are designed in many different ways. Mechanisms and teachings in one defense system may be wholly unrelated and not applicable to mechanisms and teachings used to defend in another defense system.

For example, the system in Becker provides a weapon platform for howitzers, mortars, and anti-aircraft weapons, which are well known not to be vertically trained. These weapons handle fired projectiles, meaning an explosion occurs in the tube which propels the projectile out of the tube. Further, such weapons exhibit rifled barrels for firing spin stabilized projectiles. Similarly, Grosso is directed to a spin stabilized guidance system which is an onboard control system used to control flight path. These types of onboard systems are not an integral part of Applicant's invention. Grosso is directed to sensing the operating parameters of a spin stabilized projectile and, other than mentioning a canard, has no relevance to the present invention.

The present invention is directed to a spin free missile, including a guide track and key means to ensure no rotation. The countermeasure cartridge is self-propelled meaning that it utilizes a propulsion module, such as a rocket motor, that exhibits a comparatively slow

burn, as compared to gun powder, to propel the projectile from the tube and on its course. It is a system totally unrelated to Becker as to launch and control.

Both Gassler and Finkelstein relate to launch platforms. Gassler provides an apparatus and mechanism to orient a missile in a silo. Finkelstein discloses a waterbourne launch platform. Neither reference teaches anything regarding aiming or training the missile. Those skilled in the art recognize that these platforms are designed for weapons with sophisticated, on-board controls systems. This is very different subject matter than the simple countermeasure system disclosed in the present application.

The cited references are non-analogous art, and cannot be relied upon for an obviousness rejection; therefore, Examiner's rejection should be overruled.

Rejection of Claim 54 under 35 U.S.C. 103(a)

There is No Suggestion, Motivation or Teaching to Combine the Cited Prior Art to Produce the Present Invention

Examiner first relied on Null in the final Office Action, mailed September 1, 2006, where claim 54 was finally rejected. Null discloses a sophisticated Doppler countermeasures system. It teaches a decoy that exhibits the same Doppler effect as the target thus re-targeting an enemy Doppler seeker. [col. 1, ll. 8 - 16]. Those of skill in the art recognize that the Doppler Effect is the difference between the frequency of a wave (as of sound or light) as measured at its source and as measured by an observer in relative motion. The Doppler effect can be used to determine the relative speed of an object by bouncing a wave (usually a radar wave) off the object and measuring the shift in the frequency of the wave. This principle is used in offensive defense weaponry to track and intercept incoming missiles and destroy them before they reach their targets.

The motivation to combine Null with the other references is identified as "to obtain a system that was effective for protection against Doppler attacks." [Office Action mailed September 1, 2006 p.6]. First, Applicant's invention discloses a countermeasure system for vertically launching a countermeasure cartridge trained only in azimuth. Nothing in the current application suggests the use of the Doppler effect. It is a simple, diversionary system. In contrast, the Doppler countermeasure device disclosed in Null is very complex decoy system. The invention disclosed in Null "was conceived as an answer to the enemy Doppler seeker that can discriminate against the usual chaff." Applicant's invention utilizes "the usual chaff" as its releasable decoy. Second, there is no such phenomenon as a Doppler attack. Some sophisticated offensive missiles use Doppler radar (radar based on the Doppler effect) to track and target moving objects. There is nothing in Null suggesting a combination with the other cited references would be desirable.

The Examiner has not presented a convincing line of reasoning as to why a skilled artesian would have combined Becker, Gassler, Finkelstein, Grosso and Null and has not met the burden of establishing a *prima facie* case of obviousness. Additionally, this combination does not produce the claimed invention. Finally, there is no suggestion, teaching or motivation to combine Finkelstein, Becker, Gassler, Grosso, and Null. The claim rejections should be overruled.

Conclusion

Applicant's invention allows for vertical launch of a countermeasure cartridge trained only in azimuth by placing the countermeasure cartridge in the vertical launch tube which is then rotated about its own axis to train the countermeasure cartridge in azimuth. The countermeasure cartridge is held in place during launch by a keyway in the tube which fits a key on the missile. All elements of Applicant's invention are not disclosed in the cited references.

Moreover, there is no suggestion, teaching or motivation to combine the cited references to create Applicant's invention. Finally, the cited references are from non-analogous art. For these reasons, Applicant asserts that the obviousness rejection is improper and respectfully requests that this Board overrule the Examiner and allow the claims.

Respectfully submitted,

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CLAIMS APPENDIX

Claims 1 - 10 and claims 11 - 43 and 45 (canceled)

44.(previously amended) A countermeasure system for vertically launching a countermeasure cartridge trained only in azimuth comprising:

a base for supporting the system;

a launch tube having a central axis, the tube being disposed substantially vertically on the base, the tube having a zero twist longitudinal keyway therein for effecting non-rotational, axial movement relative thereto;

means for rotating the launch tube about its axis for training the countermeasure in azimuth while disposed on the base;

a countermeasure cartridge receivable within the tube, having propulsion means for launching the cartridge longitudinally out of the tube along its axis;

the countermeasure cartridge having a guide key cooperable with the tube longitudinal keyway said guide key and said keyway being disposed for interaction to effect non-rotational axial movement throughout a substantial portion of the launch;

the countermeasure cartridge having a canard disposed thereon for adjustment of the pitch of the cartridge during flight after launch from the tube.

45.(canceled)

46. (previously added) The countermeasures system as claimed in claim 44 wherein the launch tube is housed in an outer tube affixed to the base.

47. (previously amended) The countermeasures system as claimed in claim 44 wherein the tube longitudinal keyway and the countermeasure cartridge guide key provide for rotation-free launch of the countermeasure cartridge with respect to the launch tube.

48. (previously amended) The countermeasures system as claimed in claim 47 wherein the rotation of the launch tube sets the launch azimuth orientation and course of the countermeasure cartridge and the actuation of the canard statically adjusts pitch angle and ballistic trajectory of the countermeasure cartridge.

49. (previously amended) The countermeasures system as claimed in claim 44 includes a thruster disposed substantially perpendicular to the axis of the countermeasure cartridge for selective adjustment of the course of the cartridge after launch from the launch tube.

50. (previously amended) The countermeasures system as claimed in claim 49 wherein the countermeasure cartridge includes internal control means preprogrammed for activation of the thruster.

51. (previously amended) The countermeasures system as claimed in claim 44 wherein the countermeasure cartridge includes internal control means preprogrammed for activation of the canard.

52. (previously amended) The countermeasures system as claimed in claim 44 wherein the countermeasure cartridge includes an onboard gyroscopic stabilization system to control at least one of roll, pitch and yaw of the countermeasure cartridge after launch.

53. (previously amended) The countermeasures system as claimed in claim 52 wherein the gyroscopic stabilization system is linked to a data base prior to launch of the countermeasure cartridge whereby updated flight and countermeasure information is provided to the system.

54. (previously added) The countermeasure system as claimed in claim 44 wherein the countermeasure cartridge contains a releasable decoy.

EVIDENCE APPENDIX

None.

RELATED PROCEEDINGS APPENDIX

None.